

Appendix E

Saginaw River and Bay Shoreline Soil Dioxin Results

DATA FLAGS

In order to assist with data interpretation, data qualifier flags are used on the final reports.
The most commonly used flags are:

- ND** = analyte not detected. Value is the detection limit.
- B** = analyte has been detected in the laboratory method blank as well as in an associated field sample.
- E** = indicates a concentration based on an analyte to internal standard ratio which exceeds the range of the calibration curve. Values which are outside the calibration curve are estimates only.
- I** = indicates labeled standards have been interfered with on the GC column by coeluting, interferent peaks. All quantitations relative to this standard, therefore, may be underestimated.
- J** = indicates a concentration based on an analyte to internal standard ratio which is below the calibration curve. Values outside the calibration curve are estimates only.
- PR** = indicates that a GC peak is poorly resolved. The concentrations or amounts reported for such peaks are most likely overestimated.
- Q** = indicates the presence of QC ion instabilities caused by quantitative interferences.
- S** = indicates that the response of a specific PCDD/PCDF isomer has exceeded the normal dynamic range of the mass spectrometer detection system. The corresponding signal is saturated and the reported analyte concentration is a 'minimum estimate'. Results for saturated analytes are reported as greater than the upper calibration limit.
- U** = indicates that a specific isomer cannot be resolved from a large, coeluting interferent GC peak. The specific isomer is reported as not detected as a valid concentration cannot be determined. The calculated detection limit, therefore, should be considered an underestimated value.
- V** = indicates that, although the percent recovery of a labeled standard may be below a specific QC limit, the signal-to-noise ratio of the peak is greater than ten-to-one. The standard is considered reliably quantifiable. All quantitations derived from the standard are considered valid as well.
- X** = indicates that a polychlorodibenzofuran (PCDF) peak has eluted at the same time as the associated diphenyl ether (DPE) and that the DPE peak intensity is at least ten percent of the total PCDF peak intensity. Total PCDF values are flagged "X" if the total DPE contribution to the total PCDF value is greater than ten percent. All PCDF peaks that are significantly influenced by the presence of DPE peaks
- EMPC** = are either reported as "estimated maximum possible concentration" {EMPC} values without regard to the isotopic abundance ratio, or are included in the detection limit value depending on the analytical method.

SAGINAW RIVER SHORELINE SOILS**CROW ISL 1 0-3"**

Analyte	TEF	Undiluted		Diluted		Final	
		Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)
2378-TCDD	1					J	0.37
12378-PeCDD	1					ND	0.5
123478-HxCDD	0.1					J	0.6
123678-HxCDD	0.1					J	0.86
123789-HxCDD	0.1					J	0.77
1234678-HpCDD	0.01						10.9
12346789-OCDD	0.0001						128
2378TCDF	0.1						10.6
12378-PeCDF	0.05					J	3.9
23478-PeCDF	0.5					J	4.2
123478-HxCDF	0.1					J	4.2
123678-HxCDF	0.1					J	2.7
234678-HxCDF	0.1					J	1.2
123789-HxCDF	0.1					J	0.45
1234678-HpCDF	0.01						19.3
1234789-HpCDF	0.01					J	1.1
12346789-OCDF	0.0001						24.2

Total TEQ: Non-Detects = Detection Limit 5.6
Non-Detects = 1/2 d.l. 5.4
Non-Detects = zero 5.1

SAGINAW RIVER SHORELINE SOILS**CROW ISL 1 3-6"**

Analyte	TEF	Undiluted		Diluted		Final	
		Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)
2378-TCDD	1						1
12378-PeCDD	1					ND	0.9
123478-HxCDD	0.1					J	0.86
123678-HxCDD	0.1					J	1.7
123789-HxCDD	0.1					J	1.5
1234678-HpCDD	0.01						28.2
12346789-OCDD	0.0001						278
2378TCDF	0.1						21.4
12378-PeCDF	0.05					ND	0.2
23478-PeCDF	0.5						10.3
123478-HxCDF	0.1						9.7
123678-HxCDF	0.1						5.7
234678-HxCDF	0.1					J	2.5
123789-HxCDF	0.1					ND	0.5
1234678-HpCDF	0.01						54.9
1234789-HpCDF	0.01					J	2.2
12346789-OCDF	0.0001						61.5

Total TEQ: Non-Detects = Detection Limit 12
Non-Detects = 1/2 d.l. 12
Non-Detects = zero 11

SAGINAW RIVER SHORELINE SOILS**CROW ISL 1 12-15"**

Analyte	TEF	Undiluted		Diluted		Final	
		Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)
2378-TCDD	1					ND	0.1
12378-PeCDD	1					ND	0.1
123478-HxCDD	0.1					ND	0.1
123678-HxCDD	0.1					J	0.67
123789-HxCDD	0.1					J	0.46
1234678-HpCDD	0.01						5.7
12346789-OCDD	0.0001						56.6
2378TCDF	0.1					J	0.77
12378-PeCDF	0.05					ND	0.09
23478-PeCDF	0.5					J	0.55
123478-HxCDF	0.1					J	0.74
123678-HxCDF	0.1					J	0.43
234678-HxCDF	0.1					J	0.27
123789-HxCDF	0.1					ND	0.2
1234678-HpCDF	0.01						6
1234789-HpCDF	0.01					ND	0.2
12346789-OCDF	0.0001					J	6.4

Total TEQ: Non-Detects = Detection Limit 0.97
Non-Detects = 1/2 d.l. 0.85
Non-Detects = zero 0.73

SAGINAW RIVER SHORELINE SOILS**CROW ISL 2 0-3"**

Analyte	TEF	Undiluted		Diluted		Final	
		Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)
2378-TCDD	1	J	0.63			J	0.63
12378-PeCDD	1	ND	0.3			ND	0.3
123478-HxCDD	0.1	ND	0.4			ND	0.4
123678-HxCDD	0.1	J	0.59			J	0.59
123789-HxCDD	0.1	ND	0.4			ND	0.4
1234678-HpCDD	0.01		7.4				7.4
12346789-OCDD	0.0001		42.6				42.6
2378TCDF	0.1	E	475		397		397
12378-PeCDF	0.05		153				153
23478-PeCDF	0.5		145				145
123478-HxCDF	0.1		73.3				73.3
123678-HxCDF	0.1		15				15
234678-HxCDF	0.1		10.6				10.6
123789-HxCDF	0.1	J	1.6			J	1.6
1234678-HpCDF	0.01		17.4				17.4
1234789-HpCDF	0.01	J	2.9			J	2.9
12346789-OCDF	0.0001		11.8				11.8

Total TEQ: Non-Detects = Detection Limit 130
Non-Detects = 1/2 d.l. 130
Non-Detects = zero 130

SAGINAW RIVER SHORELINE SOILS**CROW ISL 2 3-6"**

Analyte	TEF	Undiluted		Diluted		Final	
		Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)
2378-TCDD	1					ND	0.6
12378-PeCDD	1					J	0.63
123478-HxCDD	0.1					J	0.43
123678-HxCDD	0.1					J	1.3
123789-HxCDD	0.1					J	0.8
1234678-HpCDD	0.01						15.1
12346789-OCDD	0.0001						92.5
2378TCDF	0.1						127
12378-PeCDF	0.05					X	49.6
23478-PeCDF	0.5						35.9
123478-HxCDF	0.1						18.6
123678-HxCDF	0.1					J	4.5
234678-HxCDF	0.1					J	3.6
123789-HxCDF	0.1					J	0.65
1234678-HpCDF	0.01						31
1234789-HpCDF	0.01					J	2
12346789-OCDF	0.0001						23.6

Total TEQ:	Non-Detects = Detection Limit	38
	Non-Detects = 1/2 d.l.	38
	Non-Detects = zero	37

SAGINAW RIVER SHORELINE SOILS**CROW ISL 2 12-15"**

Analyte	TEF	Undiluted		Diluted		Final	
		Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)
2378-TCDD	1					J	0.49
12378-PeCDD	1					ND	0.2
123478-HxCDD	0.1					ND	0.3
123678-HxCDD	0.1					J	0.87
123789-HxCDD	0.1					ND	0.3
1234678-HpCDD	0.01						5.9
12346789-OCDD	0.0001						38.1
2378TCDF	0.1						362
12378-PeCDF	0.05						342
23478-PeCDF	0.5						214
123478-HxCDF	0.1						244
123678-HxCDF	0.1						50.5
234678-HxCDF	0.1						24.9
123789-HxCDF	0.1					J	4.1
1234678-HpCDF	0.01						61.2
1234789-HpCDF	0.01						22.7
12346789-OCDF	0.0001						60.8

Total TEQ:	Non-Detects = Detection Limit	190
	Non-Detects = 1/2 d.l.	190
	Non-Detects = zero	190

SAGINAW RIVER SHORELINE SOILS**CROW ISL 3 0-3"**

Analyte	TEF	Undiluted		Diluted		Final	
		Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)
2378-TCDD	1					J	0.56
12378-PeCDD	1					ND	0.3
123478-HxCDD	0.1					ND	0.3
123678-HxCDD	0.1					J	1.1
123789-HxCDD	0.1					J	0.63
1234678-HpCDD	0.01						22.1
12346789-OCDD	0.0001						199
2378TCDF	0.1						382
12378-PeCDF	0.05						184
23478-PeCDF	0.5						171
123478-HxCDF	0.1						73.8
123678-HxCDF	0.1						14.7
234678-HxCDF	0.1						10.5
123789-HxCDF	0.1					J	1.6
1234678-HpCDF	0.01						27.2
1234789-HpCDF	0.01					J	3.4
12346789-OCDF	0.0001						51.2
Total TEQ: Non-Detects = Detection Limit 140							
Non-Detects = 1/2 d.l. 140							
Non-Detects = zero 140							

SAGINAW RIVER SHORELINE SOILS**CROW ISL 3 3-6"**

Analyte	TEF	Undiluted		Diluted		Final	
		Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)
2378-TCDD	1					ND	0.1
12378-PeCDD	1					ND	0.2
123478-HxCDD	0.1					ND	0.2
123678-HxCDD	0.1					ND	0.2
123789-HxCDD	0.1					ND	0.2
1234678-HpCDD	0.01					J	2.8
12346789-OCDD	0.0001						19.8
2378TCDF	0.1						1.7
12378-PeCDF	0.05					ND	0.1
23478-PeCDF	0.5					J	0.78
123478-HxCDF	0.1					J	0.85
123678-HxCDF	0.1					J	0.35
234678-HxCDF	0.1					ND	0.2
123789-HxCDF	0.1					ND	0.1
1234678-HpCDF	0.01					J	3.5
1234789-HpCDF	0.01					ND	0.2
12346789-OCDF	0.0001					J	3.6
Total TEQ: Non-Detects = Detection Limit 1.1							
Non-Detects = 1/2 d.l. 0.94							
Non-Detects = zero 0.75							

SAGINAW RIVER SHORELINE SOILS**DNR 1 0-2"**

Analyte	TEF	Undiluted		Diluted		Final	
		Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)
2378-TCDD	1					ND	0.9
12378-PeCDD	1					J	0.64
123478-HxCDD	0.1					ND	0.2
123678-HxCDD	0.1					J	1.7
123789-HxCDD	0.1					J	1.2
1234678-HpCDD	0.01						20.2
12346789-OCDD	0.0001						149
2378TCDF	0.1						19.1
12378-PeCDF	0.05						5
23478-PeCDF	0.5						6
123478-HxCDF	0.1						5.8
123678-HxCDF	0.1					J	2.4
234678-HxCDF	0.1					J	1.5
123789-HxCDF	0.1					ND	0.2
1234678-HpCDF	0.01						31
1234789-HpCDF	0.01					J	1.6
12346789-OCDF	0.0001						30.8

Total TEQ: Non-Detects = Detection Limit 8.5
Non-Detects = 1/2 d.l. 8.1
Non-Detects = zero 7.6

SAGINAW RIVER SHORELINE SOILS**STATE PK 1 0-2"**

Analyte	TEF	Undiluted		Diluted		Final	
		Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)	Flags	Concentration pg/g (ppt)
2378-TCDD	1						1.7
12378-PeCDD	1					J	1.3
123478-HxCDD	0.1					J	0.69
123678-HxCDD	0.1					J	3
123789-HxCDD	0.1					ND	1.3
1234678-HpCDD	0.01						26.5
12346789-OCDD	0.0001						274
2378TCDF	0.1						606
12378-PeCDF	0.05						279
23478-PeCDF	0.5						241
123478-HxCDF	0.1						127
123678-HxCDF	0.1						28
234678-HxCDF	0.1						20.2
123789-HxCDF	0.1					J	3
1234678-HpCDF	0.01						67.9
1234789-HpCDF	0.01						6.8
12346789-OCDF	0.0001						50.1

Total TEQ: Non-Detects = Detection Limit 220
Non-Detects = 1/2 d.l. 220
Non-Detects = zero 220